THE NAVAL SAFETY CENTER'S AVIATION MAGAZINE

approach

July 199

A Tomcat Almost Eats a Teenie-Weenie

A Good Case for Wheel Alignment

Everyone Got Out Except the HAC

approach contents

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Volume 43, Number 7 — Aviation Magazine

On the cover — An SH-60B of HSL-43 fires a Hellfire on the Fallon ranges. (Photo by Ted Carlson)

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articles

Correction: In part two of the article, "A Bingo Tale in Two Parts" (April), when the pilot told the squadron rep (who was also the CO) that he had dual bleed-air lights and left and right bleed-air cautions, the CO told him to "cycle the bleed-air valves." Although this is what happened, we at the Naval Safety Center failed to mention that this advice was contrary to FA-18 NATOPS. NATOPS says, in step 5 of the L BLEED and R BLEED (dual) emergency procedure for all aircraft models, to turn off the bleed-air knob on both engines. DO NOT CYCLE is highlighted in parenthesis in step 5.

We apologize if we misled or confused readers regarding correct NATOPS bleed-air procedures.—Ed.

departments

How We Washed Up for a Side of RHIBs

by Lt. Rob Archer

I WAS A NUGGET H-46 PQM on my first Med deployment. No workups for me; it was straight from the FRS to my new squadron and then to sea for six months. I had enjoyed the cruise so far; we had had a very busy month packed full of operational commitments, and I was getting all kinds of experience. I was about to get one experience I hadn't quite anticipated.

The weather was forecast to be CAVU as we started our zero-dark-thirty preflight and brief for a good-deal log run into Kalamata, Greece. We would be flying two helos VFR in loose trail from USS *Supply* (AOE 6) to our destination approximately 120 nm away, carrying 14 passengers to the airfield ashore and returning with 14 passengers for mother.

Each bird would carry seven passengers, baggage, and an internal aux fuel tank for added range. In this configuration, each aircraft would be a few hundred pounds under max gross weight.

After it became apparent that the HAC was not going to be able to fly the helo out, he ordered the crew to prepare for water entry.

After checking the forecast and calculating performance, we determined we would have sufficient power available, but we would be out of the single-engine envelope until we burned off the fuel in the aux tanks—not an uncommon situation for the H-46.

We found no problems with either aircraft during preflight and conducted our NATOPS brief, which included our intended route of flight, formation flight and crew responsibilities in emergency situations.

I was assigned to aircraft HW-17. Our playmate, HW-00, had launched a few minutes earlier and was waiting for us in starboard "D" as sunrise approached. The plan was for us to launch after sunrise with our pax, and then HW-00 would land, top off her tanks and pick up her pax. With both birds topped off and fully loaded, we would join up and head for the beach.

After a normal engine start and rotor engagement, we hot-pumped fuel to top off our stub wing tanks and to fill up the internal aux tank. When the fueling was complete, our crewmen briefed the passengers, covering emergency exits, the use of their cranials and LPUs.

With sunrise at 0700, we signaled for the LSE to bring out our passengers for the flight. They were excited and looking forward to the flight; they even took a quick group photo next to the helo before we started our engines and engaged rotors.

After the crewmen told us everyone was strapped in and ready to go, the HAC pulled power and lifted our Phrog into a five-foot hover over the flight deck. As expected, our rotor speed drooped slightly because of our gross weight, but I immediately beeped up both engines and returned our Nr to 100 percent.

We made a standard check of the engine and performances gauges and noted that everything was within limits. I made the call, "Good gauges, normal lights," and the HAC responded, "Roger, good gauges… lights," and proceeded to pull more power and feed in forward cyclic.

We had just started to enter forward flight when I noticed the rotor speed drooping. I was not particularly alarmed because it was warm outside and Nr would normally droop a little on takeoff, especially because we were so heavy.

I was on top of things, and I immediately started to beep up the engines. A second later, I began to worry. Rotor speed was continuing to decay, and my beeping was having no effect. The helo refused to climb, and the torque on the No. 1 engine started to fall off. We had lost the engine!

The HAC, also recognizing our problem, immediately called for the single-engine-failure-on-takeoff emergency procedures. We armed our emergency throttle system and the HAC, still on the flight controls, tried to maintain rotor speed and scoop out the slowly descending aircraft. By now, we were over the water and slightly above flight-deck altitude.

I looked down at the approaching water and was momentarily overwhelmed with the thought that this was for real—no more simulations or practice EPs. Time seemed to stand still.

As the adrenaline kicked in, I snapped into automatic mode and let my training take over. After it became apparent that the HAC was not going to be able to fly the helo out, he ordered the crew to prepare for water entry. He began flaring the aircraft to bleed off airspeed and to buy the aircrewmen in back a few more precious seconds for final preparations. Our crewmen readied the passengers and cabin for the water landing.

There was a lurch as our main mounts struck the water and the last of our forward airspeed vanished. The HAC eased the helo's nose down to the water and began a water taxi. To me, it had been no more violent than the

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practice water landings I had made at the FRS. With our hands full in the cockpit, we didn't know the rescue hatch on the bottom of the helo had been forced open and water was rushing into the cabin. Water had also come up and over the ramp. The crewmen quickly tried securing the hatch, but the latches had broken off, and the best that they could do to keep it closed was to stand on it.

We immediately began our single-engine-takeoff-from-water procedures. The HAC kept the helo moving forward and tried to use the emergency throttle on the good engine while I tried to restart the flamed out No. 1 engine.

With normal indications on the engine restart, I brought it up to speed. A few seconds later, to my frustration, the engine flamed out. The HAC was not having much luck either. The emergency throttle on the No. 2 engine was not working, and we couldn't exceed topping power on the good engine. Without it, the aircraft still didn't have enough power to escape the water.

We discussed this as a crew and decided to get the passengers out. The crew chief calmly sent our passengers out over the rear ramp with a raft, along with our second crewman to look out for them. He also told us the helo was taking on water. Meanwhile, we tried to reset the emergency throttle up front and to rearm it using the copilot's controls, none of which worked. To keep ourselves afloat, we blew our HEFS pods and continued jettisoning fuel to make ourselves as light as possible. We had plenty of power for taxiing, but not enough for flight. The crew chief set to work getting rid of anything that wasn't bolted down.

I tried a second engine restart, but couldn't coax the engine past idle. On a third attempt, it never even made it to idle. On a fourth… nothing. More and more frustrated, we were also still confused about why we could not get the emergency throttle to work on the No. 2 engine. It would arm, but we could not use it to increase the power output. When we told the crew chief, he went aft to the engine-bay area and reported our problems could be because of the water. It was lapping at his knees and had most likely soaked the emergency throttle-control boxes in the lower part of the cabin.

The HAC then decided that the crew chief and I should prepare to get out. He told me to get rid of my kneeboard and jettison my door, and a few seconds later, he gave me the order to go. In an Olympic performance, I dove out the big hole where my door had been, hit the water, and did a somersault, all the while praying that the stub wing and HEFS pod would miss me. Fortunately, the HAC turned the helo away from me.

I watched the wounded aircraft taxi away as I bobbed in the water, tossed about by the rotor wash. When I knew I was clear of the aircraft, I inflated my SV-2.

As I floated in the water, I saw the helo make a 90-degree turn and taxi behind the stern of our ship and disappear from sight. Looking to my left, I saw our playmate, HW-00 again. They were in a 50-foot hover near our former passengers and had lowered a rescue swimmer to assist them. I watched patiently as the first of the survivors was hoisted up. I then looked back toward the ship and saw a crowd manning the rails and the flash of several cameras. As I waved my arms toward the ship in an effort to make someone see me, I jumped as I felt something grab me on my shoulder. I turned around in fear only to see the crew chief. I hadn't seen him leave the aircraft but he was out, unhurt and coherent.

lled left, inverted and sank.

He had escaped that helo seconds after me and had been trying to call me as he swam in my direction for the last two minutes. We checked each other for injuries and to mode sure our SV-2s were properly inflated.

We heard our aircraft coming closer now. It had done a 180 and was taxiing away from the ship's stern toward the starboard side. We could see extreme coning of the rotor blades trying desperately to reach up into the air as the helo came into view. The HAC had yet to give up and was still trying to get airborne.

As we followed the track of our former ride a quarter mile off the starboard side of the ship, a RHIB pulled up next to us. The boat crew made sure we were OK, then hauled us aboard. After scrambling into the RHIB, I turned to see the final moments of HW-17.

As the helo taxied forward, it nosed down slightly, and the forward blades struck the sea with a violent explosion of water. An instant later, the helo rolled left, inverted and sank. We saw some debris floating on the water where the helo went under, and though several people thought that they saw the white helmet of the HAC, no one had seen him get out. The boat crew immediately gunned the RHIB's throttle and raced over.

We saw pieces of rotor blades, seat cushions, and not much else. Moments later, however, a white helmet bobbed up. The HAC had survived! He was floating amid the debris with his SV-2 inflated and HEED bottle firmly clenched in his mouth. The boat crew brought him aboard and had to pry the HEED bottle out of his mouth. He was dazed but otherwise OK. The RHIB crew informed us the other helo had picked up two survivors and that the ship's second RHIB boat had the other six. The knowledge that everyone had made it out and was safe was welcome news to our battered crew as we were shuttled back to our ship.

We lost an aircraft, but more importantly, we saved our passengers and crew. We remained calm and collected during the entire adventure and thus were able to do all that was required. Afterward, our former passengers commented on the fact that they didn't panic because of how we handled things as an aircrew. They thought we were too calm for them to be in any real danger, and were confident everyone would be safe. They were even looking forward to developing the pictures they had taken while still onboard the aircraft before they egressed. Their cameras and film were unfortunately ruined as no one had a waterproof "Fun-saver."

Two major concepts were forever reinforced for me: our training works, and crew coordination is vital. My training enabled me to stay calm, professional and focused. I knew what had to be done and how the aircraft would perform. Crew coordination allowed us to work together when things did not progress as expected (like not being able to use emergency throttle on our good engine). Everyone in the crew had important information to offer concerning our problems. We discussed our options and took what we determined to be the best course of action.

As fate would have it, the day before our little swim, the same HAC had given one of my fellow PQMs a simulated "single engine failure on takeoff" just as they launched. Of course, things went much better for my friend. He maintained level flight and made a practice "torque limited" single-engine approach to the ship.

Lt. Archer flies with HC-6.

Does Anyone Here Speak My Language?

by Lt. J.P. Kelley

I HAD A STRANGE FEELING in my stomach when my CO patted me on the back and said, "Enjoy your good deal flight to Rio, J.P."

When you fly C-9s, you occasionally get a trip that, at first glance, appears to be a lot of fun. Our trip from NAS Jacksonville to sunny Rio de Janeiro was definitely in that category. The reality was that we would be carrying VIPs to a conference where they would stay for four days. Our crew would be on the deck for 15 hours and then be on our way back home. Another squadron would fly to Rio three days later to pick up the VIPs. To get our legal crew-rest period, our schedule wasn't going to leave much time for sightseeing, especially with a 2200 local arrival time.

Maybe we were doomed from the start. Our schedule had us departing Jacksonville on Friday the 13th. Our takeoff was *1300*, on aircraft *513*.

We arrived to find our aircraft on jacks in the hangar, and began our patient delay period with somewhat anxious customers concerned about their VIPs' arrival to the conference. Ultimately, enough time had passed to make the mission unfeasible for that day (whew), and we postponed it until the next day. We could still make the meeting on time if we left early and flew all the way through to Rio with a fuel stop in Rosey and another in French Guiana. We departed on Saturday and things went well until Guiana. Apparently, we got the weekend crew, who were not prepared for our arrival. We spent considerable time trying to figure out how to ask for fuel as our VIPs sat patiently on the aircraft. With all the high-school French I could muster, I was able to successfully find the bathroom and learn the time. Don't ask about the flight clearance. Once we got under way from French Guiana, things started to settle down. We flew over the big rain forest and started to see the light at the end of the tunnel.

About 45 minutes north of Rio, our crew chief came to the cockpit not looking well at all. I asked him what was wrong. He apologized and said he had tried to hold out as long as he could, but he just couldn't take it any more. Again, I asked what the problem was. He said he didn't want to make trouble with VIPs aboard, but he was having shooting pains in his chest and was feeling like it was on fire. He looked flushed and was somewhat panicky. I turned over the controls to the copilot and instructed him to set max continuous power, after which I went in the back with the crew chief. He sat down and the flight attendant got him some water. We asked a few questions and found there was a

strong history of heart problems in his immediate family. He was obviously shaken, so we laid him down across the seats and gave him oxygen. We tried using positive psychology to calm him down. I felt this was very important because we were in the middle of nowhere, and it would be quite a while before we could get him to a doctor. Nobody on the aircraft had any medical training, so we were on our own.

Once we got him settled, I returned to the cockpit and heard the copilot trying to request an ambulance to be standing by when we landed. A great call, but extremely difficult because of the language barrier with the controller. (As most of you who have flown through foreign airspace and dealt with their controllers know, you never can tell how things will go. You may think your controller speaks decent English until you ask him for something non-standard.) The copilot also asked if there was a field closer than Rio that had medical facilities. This request went unanswered. We pressed on.

When we declared a medical emergency, using those exact words, we received the same handling as an aircraft emergency. An ambulance was waiting when we landed. The biggest advantage of using the proper phraseology was that the controllers understood what we meant. This may seem simple, but it is incredibly frustrating to try telling someone about a situation if they don't understand you. Our natural reaction was to speak slowly and give as much info as possible, which didn't work in this case.

After landing, our crew chief was taken to the nearby Brazilian Air Force hospital and was never heard from again. (Just kidding.) Actually, we sent the flight attendant with him to help out with the communication and to lend moral support. This would probably be the end of a normal *Approach* article but there are some other things that we learned that might help someone in a similar situation.

First, if you find yourself in a foreign land in the middle of a bad situation, besides your squadron, call the American embassy or consulate. If it's the weekend and or after hours, (in our case it was both), call the after-hours number listed in the Foreign Clearance Guide. This is a great reason to carry a FCG with you whenever you are going to operate outside the U.S. That is SOP for our squadron and it should be for yours, believe me. Things would have been worse if we hadn't had that book.

Does Anyone Here My Language?

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Ask for the duty officer, as you will likely be talking to a Marine sentry. Getting help from the embassy is important, especially to get an interpreter. The embassy will have someone who speaks the local language and thereby overcome most of your problems. It will also be the official way to notify the State Department or other agencies if special assistance is required, based upon your particular incident. It may also be the only good way of communicating back to your squadron or the States.

The only person in the consulate was the operator who didn't speak English.

Another problem to consider is that you may not be in an area that has an embassy. If the embassy is in another city, or even another island or country, look for a consulate. They may have a more local office but may not have as high a level of service. Either way, talking to someone who can understand you is your highest priority.

Our case was complicated. We were in a city that did not have an embassy but did have a consulate, which was good, but the consulate staff was hard to reach because they were hosting the VIPs and were out of the office. The only person in the consulate was the operator who didn't speak English. Since we had our trusty FCG with us, we just called the embassy. The people there told us we needed to call the consulate in Rio.

"We already did that, sir," we replied, "but they don't speak English." Remember that this was the "weekend crew." Once Monday rolled around, the embassy and consulate were invaluable in solving our problems.

Our story ended well. Our crew chief was hospitalized for three days in Rio. The staff did many tests to determine the level of heart damage he had suffered. The doctors and nurses were extremely professional and caring and were very concerned about him. We all spent many hours in that hospital trying to communicate and to lend moral support to our friend. He related how scary it was going through tests and not being able to ask the doctors what they were doing. Just having someone there that he could talk to seemed to help him a lot. The doctors in the hospital determined (as well as they could explain) that he had some type of stomach ulceration, which was causing serious burning and shooting pains in his chest. We talked to our flight surgeon, who said it would be safe to transport him home to the States. Our squadron sent another crew chief down on a commercial flight and we were able to get everyone home on the fourth day.

Lt. Kelley is a C-9B instructor pilot with VR-58.

POP-UPS

Anti-Exposure Suits Flawed

Many aircrew anti-exposure suits are failing preflight and postflight inspections because of seam delamination.

The suit (CWU-61A/P) has latex rubber neck and wrist seals, which are connected to the fabric suit. After two weeks of flights using the suits, VMFA (AW)-121 found that the seals on 23 of the 34 suits used showed signs of delamination. This has been termed a common problem throughout the fleet.

Fixing the failing suits needs intermediate level attention and takes at least three days. During this time aircrews are restricted from training flights over cold water.

NAWCAD Patuxent River has procured a different type of adhesive to connect the seals to the suit fabric. But the improved adhesive is available only in 55-gallon containers, an amount of hazardous material that can't be handled at the intermediate maintenance level. VMFA (AW)-121 recommended practical-size containers be used instead.

Falcons Fight Bird Strikes

Air bases are using the ancient art of falconry to help prevent bird strikes.

Historically, falconry involved humans using trained falcons to hunt and capture wild game animals. They are now being flown in a controlled manner to harass nuisance birds around air bases and airports and reduce the attractiveness of the airfields to the birds.

Bases using them are Scott AFB, Ill., and the RAF's Lakenheath/Mildenhall in the United Kingdom.

New BASH Program

A new Bird Avoidance Model (BAM) will be available this summer, giving more information and planning tools for squadrons. Don't leave homeplate without it. Look for more information on this development in the future on our website (*www.norfolk.navy.mil/safecen*) or contact the Naval Safety Center's BASH POC, Lt. Jimmy McLaughlin.

Cordless ICS for Helos Under Review

Recently, a helicopter second crewman became tangled in his ICS cord while exiting a ditched CH-46D. He got out all right, but he would have made it easier if the cord wasn't there.

COMNAVAIRPAC has asked COMNAVAIRSYSCOM to fund the testing and procurement of a cordless ICS for use in helos where there is a need for aircrewmen to move about the cabin.

Technology for a safe, reliable ICS system without cords is promising. If such a system proves feasible, it could replace long-cord communications in aircraft when aircrew have to talk while not strapped to their seats.

HMX-1, HC-3 and HC-11 are currently evaluating prototype cordless ICS systems.

Laser Lineup Coming to Fleet

The new Long Range Line-Up System (LRLS) will help the carrier pilot fly his aircraft to the approach centerline by giving him lineup ability at an increased distance from the ship. The LRLS will give night visual cues from .60 to 8.0 nautical miles from the ship.

"Safety of flight is improved as LRLS enables the pilots to acquire lineup earlier in their approach, which give them more time to concentrate on flying SPN-46 needles and ultimately attain proper glide slope from FLOLS/IFLOLS," according to Bruce Chioti, LRLS systems engineer, at Naval Air Warfare Air Division, NAS Lakehurst, N.J.

Sine Language

The Prowler pilot made a smooth approach to the right hose of the KC-10 tanker, contacted the basket, and began refueling. After two minutes, both the pilot and ECMO-1 saw the refueling hose stiffen then develop a sine wave, a bending curve in the hose moving toward the EA-6B.

The pilot immediately recognized what was happening, bringing the throttles to idle and extending the speed brakes. Despite his attempt to quickly disengage the basket, the sine wave hit the basket, cleanly cutting it from the hose and planting it securely on the Prowler's refueling probe. The pilot backed away from the KC-10 and returned safely to his base with his excess baggage.

The sine wave rears it's ugly head frequently during inflight refueling. A sine wave in the refueling hose can damage an aircraft and injure the crew. In this instance, there was no damage or injury.

Failure or malfunction of the hose-reel response of the wing aerial-refueling pod system (WARPS) may have been the culprit. The squadron involved recommended that Naval Air Systems Command review all hazreps and MIRs involving WARPS. If results of this review warrant, NAVAIRSYSCOM should determine whether a functional redesign of the KC-10 WARPS hose-reel response system would increase the safety margin during inflight refueling.

Edited by Bud Baer. Contributors can contact him at (757) 444-3520, Ext. 7246 (DSN 564).

I Just

by Ltjg. Gabriel Soltero

I had reported to the Red Lions for my first sea tour. We had just begun workups for our next cruise. At the time, we were aboard the USS *Dwight D. Eisenhower* (CVN 69), operating off Puerto Rico. I thoroughly enjoyed flying around the place where I'd grown up, visiting the neighboring island of Vieques for a number of combat search and rescue (CSAR) exercises and learning about the capabilities of the HH-60H helicopter.

One day we were tasked with plane guard duties, and we promptly settled into the starboard delta pattern after lifting off. One of our other helos was in the area as well, making logistic runs between the *Ike* and the *Anzio* (CG 68), as the carrier prepared to turn into the wind to begin its next cycle.

We watched from a few miles away as aircraft started launching, the hot sun glinting off the canopies as they turned to climb once the catapults shot them into the sky. I was flying in the right seat, hogging all the first pilot time my HAC would allow.

Suddenly, someone yelled over the radio, "Eject, eject, eject!" I looked up from my instruments to see a huge splash in the water just off the starboard bow. I was still taking it all in half a second later when the crewmen in the back of our helo yelled out, "Let's go!" The HAC took the controls and bustered to the scene. I took a deep breath, all kinds of thoughts racing through my mind, and picked up my pocket checklist to ensure we were properly rigged for rescue.

"I just got here," I thought. "This isn't supposed to happen until I get more experience flying around the boat." I wondered what had happened, then I quickly pushed those thoughts aside and concentrated on the task at hand.

As we neared the scene, details started to emerge. The radios were full of chatter, but I heard the words "cold cat" over and over. A Hornet had somehow come loose from the catapult during launch, and the aircraft quickly careened into the ocean. We hoped the pilot had ejected in time. Our other helo arrived on scene first, but the Air Boss directed them to stand clear and allow us to start the rescue. They had spotted the downed aviator, though, and steered us in before moving away. The ship maneuvered to avoid running over the pilot, and as we

Got Here!

crossed the *Ike*'s stern, I saw a white helmet bobbing on the surface, off the port quarter. As we pulled into a hover 60 feet above the water, I called, "Survivor in sight," and was relieved to see him give me a thumbs up.

"He's going to be OK," I thought. Since he was at our one o'clock, the HAC tapped my left shoulder and said, "OK, you have the controls." I vacillated for a second, but then acknowledged and took the aircraft. He engaged our automatic hover mode, and the aircraft settled down, the computers doing their job to keep us in position.

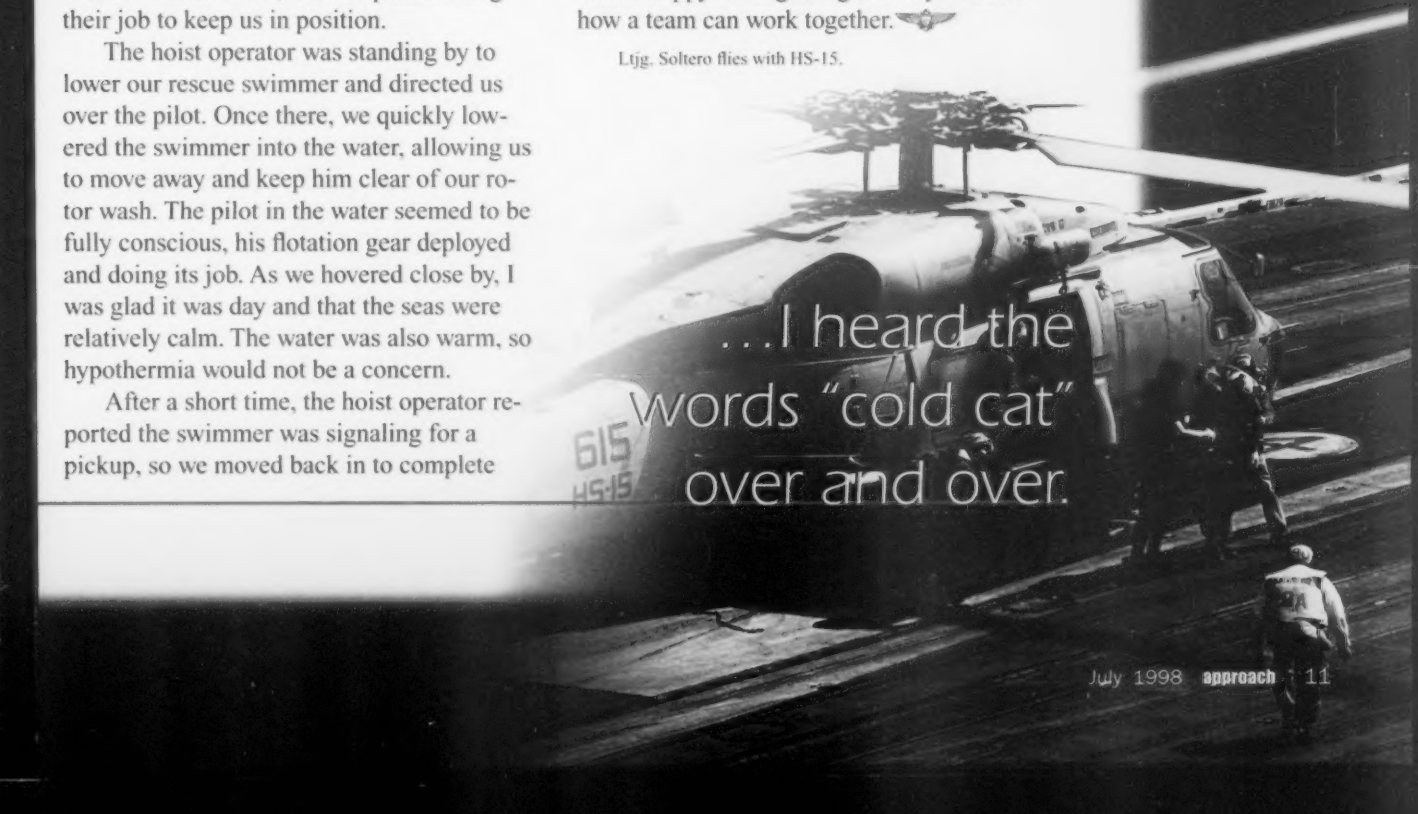
The hoist operator was standing by to lower our rescue swimmer and directed us over the pilot. Once there, we quickly lowered the swimmer into the water, allowing us to move away and keep him clear of our rotor wash. The pilot in the water seemed to be fully conscious, his flotation gear deployed and doing its job. As we hovered close by, I was glad it was day and that the seas were relatively calm. The water was also warm, so hypothermia would not be a concern.

After a short time, the hoist operator reported the swimmer was signaling for a pickup, so we moved back in to complete our mission. I watched the hoist come up in my sideview mirror, feeling a combination of excitement and relief after realizing the hard part was over.

The HAC took the helo back once the hoist operator told us he was ready to depart, and flew us back to the ship. The pilot appeared to be unhurt, walking off the aircraft to the cheers of the flight-deck crew.

The call "pilot in the water" is one that a skipper never wants to make, but a rescue with a happy ending is a great way to show how a team can work together.

Ltjg. Soltero flies with HS-15.



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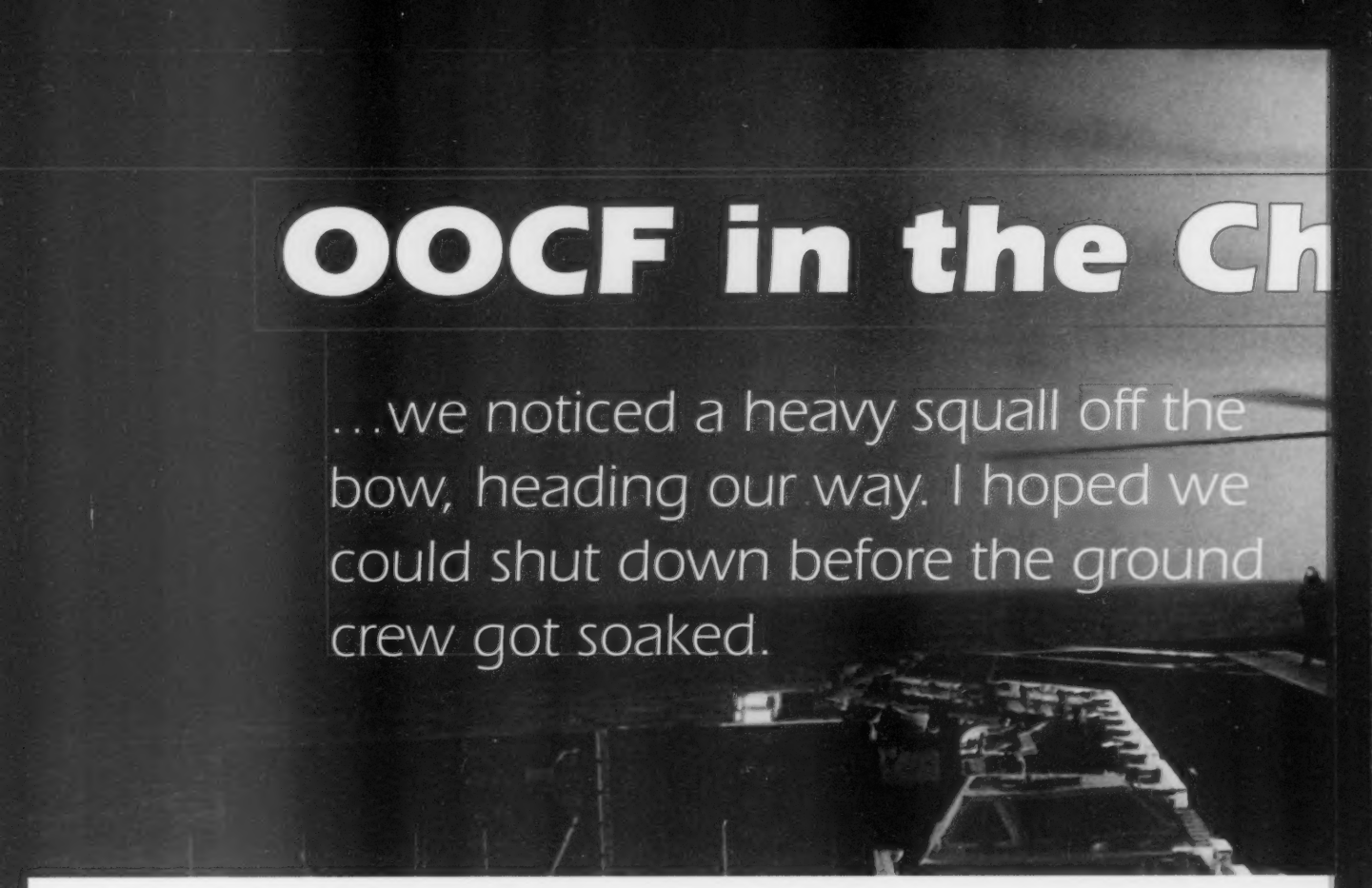


...we noticed a heavy squall off the bow, heading our way. I hoped we could shut down before the ground crew got soaked.

by Cdr. James E. Stahlman

It was the end of a typical CQ plane guard, including three hours of right-hand doughnuts in our vintage Sea Kings (Yes, Virginia, there are still H-3s in the reserves). Our playmate had arrived from a beach run and we waited patiently in starboard D for the straight-wingers to finish doing their thing.

Finally, the recovery was complete and the Boss called charlie. Our playmate went in first for spot 4, and we headed for spot 5. Everything looked normal on the approach, except for the big thunderstorm with lots of lightning about a half-mile off the ship's port bow. Half in jest, I told my copilot to watch for signs of windshear since we were so close to this storm. My first clue that I might be right was our 20-knot groundspeed at 70 knots indicated, but the other helo landed safely. I set up to slide in between him and the electric A-6 parked just aft of the spot.

As we landed and called for chocks and chains, we noticed a heavy squall off the bow, heading our way. I hoped we could shut down before the ground crew got soaked.

The deck crew applied four chains and two chocks to the aircraft as the rain hit the deck. Suddenly, the wind increased from 30 knots at 20 degrees port to 40 to 50 knots and gusting. We were now outside the wind envelope to shut down the rotor, so we waited. Then the wind speed increased again to almost 70 knots and changed direction to a direct left crosswind. In front of us, the second H-3 began sliding across the deck until its port tail chain was taut. Even with the collectives full down, both of our aircraft began to lift off the deck. For the next five minutes, we tried keeping the aircraft from flying.

The ship appeared to go dead in the water to minimize the winds, but we still needed about half of the available stick authority into the port crosswind to keep from sliding to the limits of the chains. Both of our aircraft bounced around with our landing gear struts

fully extended as the wind tried to pick us up. At least once, my port wheels cleared the deck. We had no options. We couldn't safely remove the chains and lift off, so we had no choice but to ride it out.

The chock runners and LSEs were diligently manning their posts but were clearly in danger if chains started popping and the aircraft rolled. Ground resonance or dynamic rollover was a real possibility with the chains still attached.

We called the Boss and recommended he pull the ground crew off the deck until the winds died down, which he immediately did. After a long time, the wind finally began to subside, and we were able to complete a normal shutdown and fold the blades.

So what lessons can we learn from this wild ride in our big, gray Winnebagos? I had been concerned about windshear on the approach but never considered the wind risk once we were on deck. Neither of the HACs or copilots (with a combined total of 9,500 hours between the four of us) nor the Mini-Boss in the tower had ever experienced this type of situation, so we had no corporate knowledge to help evaluate the risks.

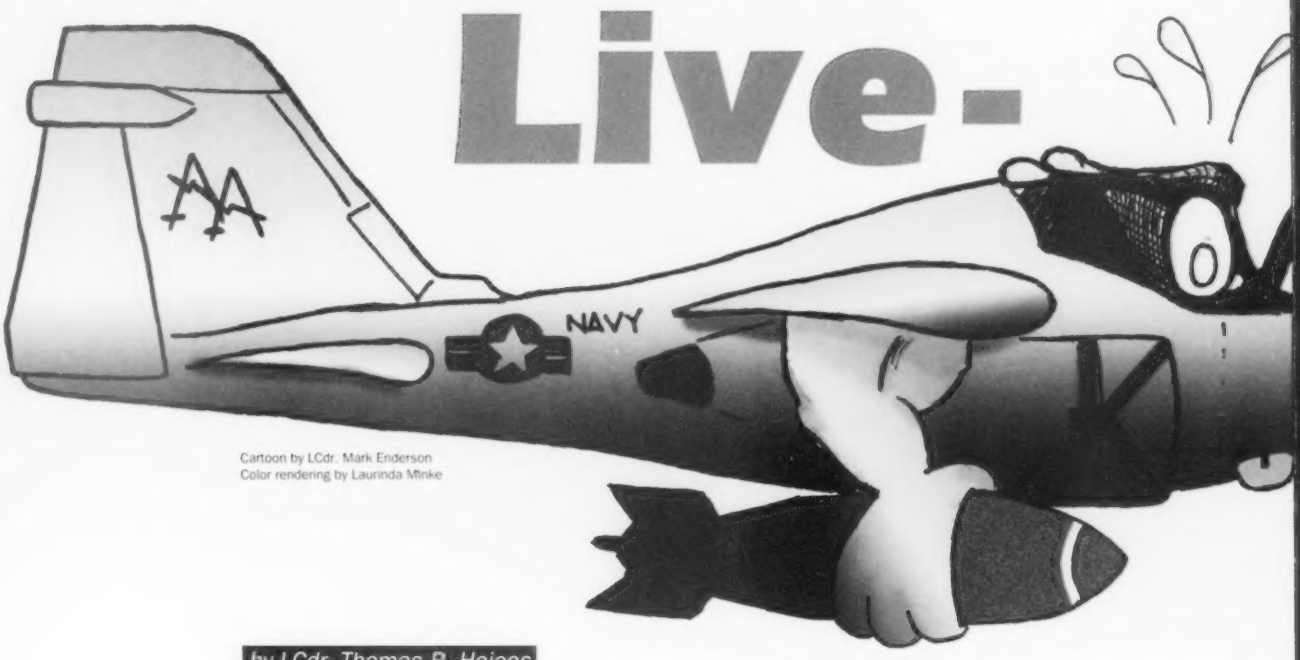
The right answer to the problem was for us to remain aloft until the ship had maneuvered well clear of the thunder cell, then land. The Air Boss even apologized for setting up the situation but either HAC could have made the request to stay airborne as well. On deck, we probably waited too long to get the ground crew out of the danger zone, but it's unusual to have helos turning on the deck without an LSE, so it took a minute to evaluate the risk and act.

Finally, I relearned that there are still new and unexplored ways to destroy our aircraft and hurt our people. Use risk management to evaluate your own operations to see if you can find some of the risks.

Cdr. Stahlman flies with HS-75.

I was horrified to see what two Mk-83s look like going off at close range.

Live-



Cartoon by LCdr. Mark Enderson
Color rendering by Laurinda Minke

by LCdr. Thomas R. Hoioos

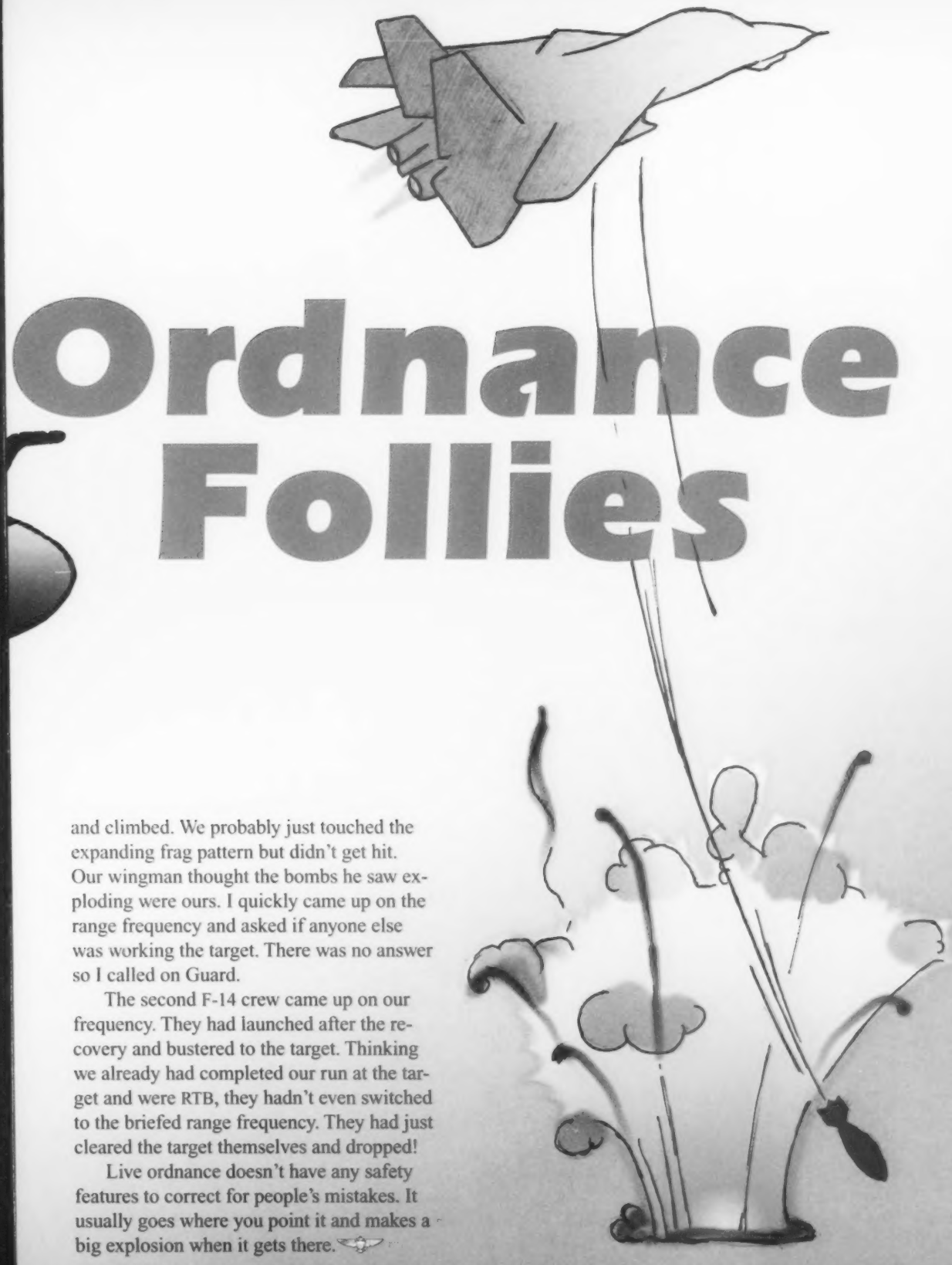
LIVE-ORDNANCE HOPS ARE FUN. It's always rewarding to see bombs going off in the mirrors. We were range safety for an air wing live-ordnance hop. As permanent WestPac residents, we had bombed this particular target many times before.

The brief covered all the required safety items, including minimum altitudes to avoid the frag pattern of not just Mk-83s but any unexploded Mk-84s on the island. The control frequency would be our air-wing or common frequency. We had sections of Hornets, Tomcats and Intruders loaded with two live Mk-83s each. Our Intruders would hold high overhead the range and clear each section in and off the target. Once the Hornets and Tomcats were done, we planned to have our wingman drop his ordnance, then swap roles and let him be range safety while we dropped our bombs.

The launch went normally, except that only one Tomcat made it off the deck. We proceeded to the target and cleared the Hornets and Tomcat in and off. We next cleared our wingman in and watched as he took another chunk out of the volcanic rock. We exchanged roles as briefed and dropped down to begin a low-altitude loft. We would approach the target at 200 feet as fast as we could and loft our two 1,000-pounders 2.5 miles from the target. At three miles, with the island locked up on the radar and FLIR, I looked out the front windscreen.

I was horrified to see what two Mk-83s look like going off at close range. We aborted the run, turned as hard as we could,

Ordnance Follies



and climbed. We probably just touched the expanding frag pattern but didn't get hit. Our wingman thought the bombs he saw exploding were ours. I quickly came up on the range frequency and asked if anyone else was working the target. There was no answer so I called on Guard.

The second F-14 crew came up on our frequency. They had launched after the recovery and bustered to the target. Thinking we already had completed our run at the target and were RTB, they hadn't even switched to the briefed range frequency. They had just cleared the target themselves and dropped!

Live ordnance doesn't have any safety features to correct for people's mistakes. It usually goes where you point it and makes a big explosion when it gets there.

LCdr. Hoioos flies with VAQ-131.

I immediately saw extra lights all over the instrument panel as TGT maxed red.

Sucking

by Lt. Karen Fine

YOU KNOW THE STORY. It's the last work-up cycle before the cruise. Our carrier is off southern California and all the SURGEX participants are aboard.

Operational tempo is high and the squadrons are standing around-the-clock alerts. The pressure is there to knock out the CQs for the fixed-wing guys.

We were the plane-guard crew for the 1030 cycle. As the 1200 launch began, the Boss realized he needed to hot-pump and hot-switch our crew if we were to cover plane guard until 1400. He cleared us to spot 6 on the fantail.

As we headed toward the assigned spot, he waved us off for another lap so he could launch a Tomcat. No problem. When he finally cleared us in, there were two Tomcats on cats 3 and 4. The JBDs were up and the jets appeared to be holding. Because they had sent us around to launch a Tomcat, I figured they were holding these guys for us to get fuel.

As we came across the fantail, cat 3 launched a Tomcat. My copilot got as far as, "That can't be good…" when I saw the JBD go down, and the jet wash hit the air. The next thing we heard was a very loud "machine gun" popping noise (just like in the simulator, but much louder) from both engines as they began to wind down.

The noise was so loud that my copilot thought we might have hit something. He was looking outside as he transitioned to a hover at 30 feet. I immediately saw extra lights all over the instrument panel as TGT maxed red. The Nr had not yet begun to droop.

My copilot started drifting the aircraft left to avoid a second aircraft taxiing in front of us. I immediately identified the dual compressor stall and said, "It's a compressor stall. Land!" Of course, the aircrew in back echoed my call.

My copilot immediately did the EPs, lowering the collective and turning on contingency power. I switched to an outside scan to help with the landing. He landed safely on deck.

As soon as we landed, cat 4 launched *another* Tomcat.

Once on deck, our engines returned to normal, and we called for chocks and chains. After taking a deep breath, and reviewing what happened (the whole thing took about five seconds from stall until landing), I called departure and asked for a rep.

I told him both our compressors had stalled after we had ingested exhaust from

Tomcat Exhaust

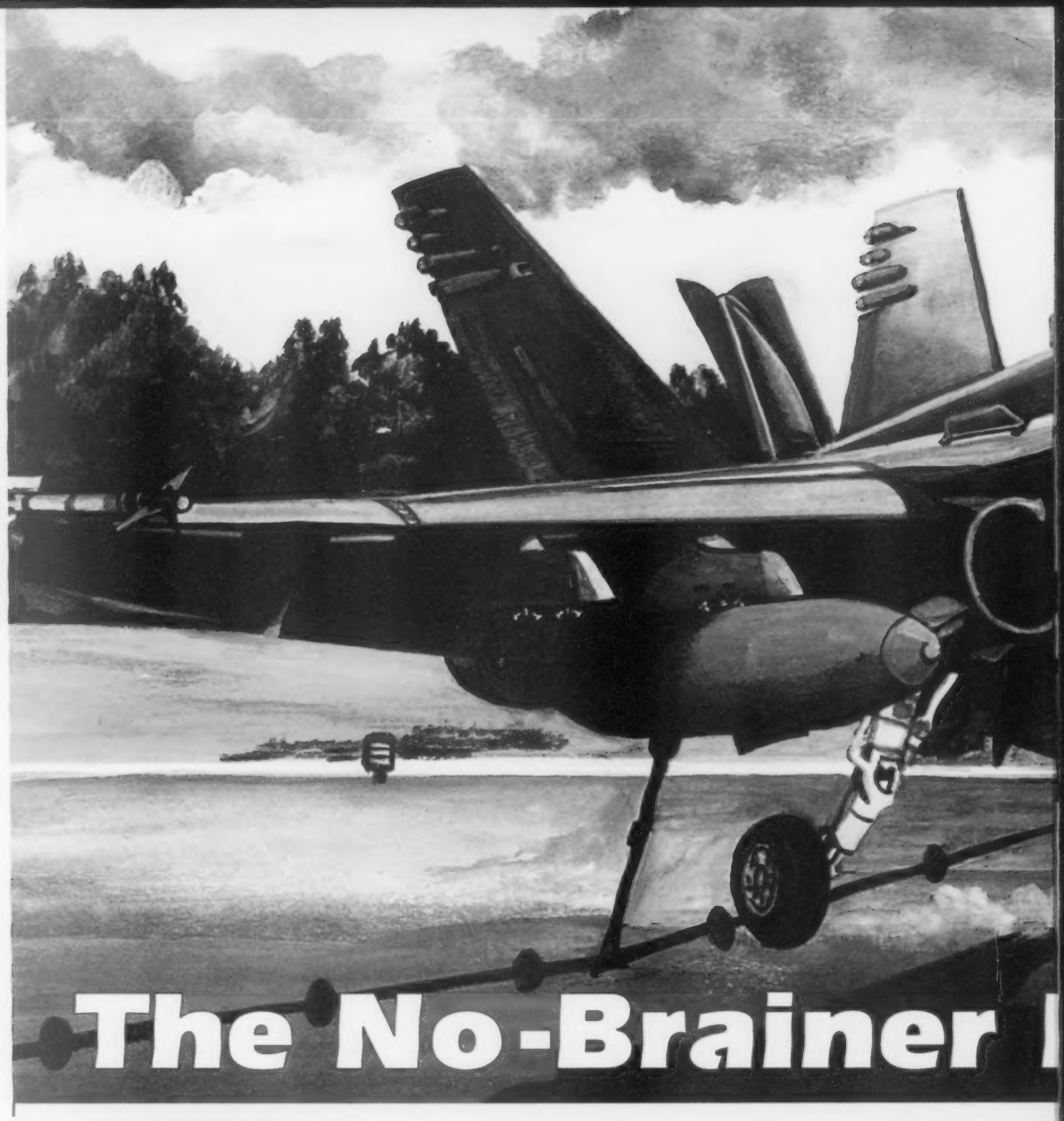
the jet launch. I asked him to please tell maintenance. When we reached the ready room, maintenance had downed the aircraft, and plans were being made for a backup.

NATOPS warns of incidents such as these, but does not prohibit approaches to the fantail while jets are preparing for launch. However, it does say, "Helicopters shall not be landed or launched when their engine performance or stability could be affected by turning jet engines."

After maintainers checked our aircraft, it flew again later that day with no problems.

The Air Boss later called the CO to apologize. If we had not been directly over the fantail, or hadn't done the EPs immediately, this incident could have ended differently. In the future, I won't hesitate to question authority and ensure I was actually cleared to land.

Lt. Fine flies with HS-8.



The No-Brainer

by Lt. Rob McGregor

LEADING A SECTION OF HORNETS back to base after a training mission and getting them safely back on deck proved to be anything but routine. We were fat on gas as we broke overhead the field to land. I flew the ball on a normal 3-degree glide slope and as I touched down, I felt the left main gear give more than usual as the jet yawed to the left. I immediately went to full afterburner and made an emergency takeoff. Once airborne I saw a flashing left-gear light, which meant I had a planing-link failure.

[*The FA-18's planing link is a strut that rotates the main landing gear as it lowers to the down-and-locked position. Planing-link failure leaves the main gear in a trail position with the tire up to 90 degrees out of the landing direction, causing problems with directional control on the ground.—Ed.*]

I told my wingman, who was now rolling into the groove, that I would need him to check my left main gear. As we flew around the pattern, he confirmed that the left main wheel did not appear to be straight. Follow-

Field Arrestment

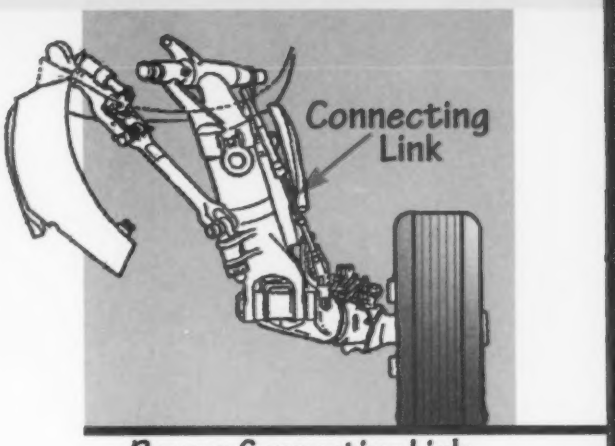
ing NATOPS, I put the hook down for a field arrestment.

While sending my wingman down to land ahead of me, I discussed the situation with the SDO on base frequency and set up for an arrested landing. NATOPS describes a planing link failure as normally causing the jet to drift into the failed gear as the aircraft decelerates to a slow speed. I knew from the way the jet yawed left at touchdown that I was not dealing with a normal planing link failure. I was going to have to make a fly-in arrestment, as NATOPS directs.

With no LSO on station and no frensel lens located with the gear, I knew that flying into the gear might be difficult. The LSO advised me to put the velocity vector just short of the arresting gear, causing the jet to touch down right in front of the gear, and effect a near fly-in arrestment.

I did not know whether to flare the landing or fly a 3-degree glide slope to touchdown, so being a carrier aviator, I decided to fly a 3-degree glide slope, on-speed, to

As the jet touched down and yawed left, I programmed in a bit of back-stick pressure and again began to advance the throttles in case of another hook skip.



Proper Connecting Link
Looking Aft

touchdown. After all, that's how we catch the wire at the boat, right?

On the first attempt with the velocity vector on the gear, I landed just in front of the arresting gear, and the aircraft again jerked hard left as I rolled over the wire without engaging it. I was already staging the blowers to get airborne again while the jet was pointed about 15 degrees left. It did not straighten out for a couple of nervous moments until I was airborne and pointed back into the wind. My second attempt went much like the first, with tremendous yaw at touchdown, and again I failed to engage the arresting gear.

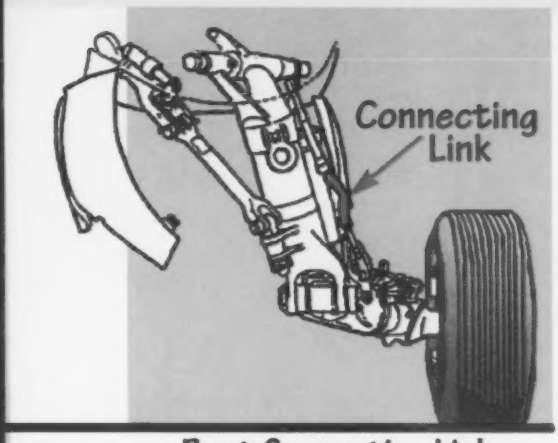
I had arrived in the break with about 4,000 pounds of fuel and was now down to 2,400 pounds. Not knowing whether my hook, the arresting gear, or the landing technique was the problem, and getting anxious about my fuel state, I decided to try the arresting gear on the other end of the runway. On my teardrop downwind to switch runways, I talked it over with my wingman, who was now in the fuel skids watching me go around and around. We decided that I should try a more shallow approach to touchdown and then hold a bit of back stick as I rolled over the gear. We also discussed the distance I should land in front of the gear. It is common practice to take a field arrestment by landing 500 to 1,000 feet in front of the gear and rolling into it. But knowing I could not keep the jet rolling straight down the runway, I decided I needed to land just a plane-length or so in front of the arresting gear and hope I could snag the wire.

As I passed the 90, I started thinking about the eventuality of trying to roll out on the runway. What procedures and techniques would I use to pull it off? What would my ejection criteria be if the airplane went off the runway?

As I rolled final with a fuel state of 2.1, I put those questions on the back burner and concentrated on the landing. The approach went as planned. As the jet touched down and yawed left, I programmed in a bit of back-stick pressure and again began to advance the throttles in case of another hook skip. This technique worked and I felt the welcome deceleration of a field arrestment.

After pinning the gear and shutting down on the runway, I discovered a connecting link with a 30-degree bend in it instead of the indicated planing link failure. The bent connecting link made the wheel cant outward, causing the tremendous left yaw at touchdown.

Monday morning quarterbacking in the days that followed brought out a number of good points. I was glad that I'd begun this process of trial and error with more fuel than normal. The difficulty in engaging the wire was a combination of two factors.



Bent Connecting Link Looking Aft

Even though the wheel was canted out by only 5-10 degrees, the angle was sufficient—combined with a touchdown speed of 140 KIAS—to drag the aircraft violently to the left. For the same reason we keep our cars' front ends aligned, this seemingly minor, displacement drastically altered the Hornet's direction of travel.

First, the arresting gear at the field is not the same as the more familiar arresting gear on the boat. The E-28 gear uses rubber doughnuts to raise it off the deck. It is also longer and not held as tightly as the ship gear. This causes the E-28 pendant to sag as low as two inches off the deck at the midpoint between doughnuts. The arresting gear on the ship, however, is held consistently at about 5 or 6 inches off the deck.

Second, the Hornet has a characteristic pitching movement at touchdown. As the nose strut compresses on the deck, the main gears extend, momentarily lifting the tail of the aircraft. At this exact moment, the hook point may actually raise off the deck just enough to skip the wire. This pitching movement becomes more pronounced with harder landings. Make no mistake, the Hornet has the best hook in the business, but we have all seen an occasional hook skip bolter or a trap where we have missed a wire and caught the next one.

NATOPS has no advice on how to execute a fly-in arrestment using velocity vector placement as the only tool. Because we couldn't get an LSO on station, my best technique was to land just in front of the gear. I flew a flat approach using velocity vector placement and deck-spotting skills I learned on cruise (sorry, paddles) to touch down about a plane-length in front of the gear. I held the velocity vector on the gear until the last few seconds of the approach where I flattened out slightly to effect a softer touchdown. As I rolled over the gear, I held a bit of back stick to keep the nose from falling through, but not so much as to cause the jet to get airborne again. This technique seemed to help the hook engage the wire.

Consider again those thoughts at the 90. How do you roll out with a gear problem that makes it hard to steer? I referred to the planing link failure procedures in NATOPS, but I couldn't have countered the tremendous yaw with braking and nosewheel steering. You may not be able to maintain control of the aircraft on the runway, so, do you know what your eject criteria is? Decide now because there is precious little time to think as you go skidding off the runway.

There are many considerations including speed, position on the runway, and terrain around the runway. I was prepared to eject if I saw more than 48 knots in the HUD or was skidding sideways as I left the runway. I'm just glad I didn't have to test my criteria.

How quickly can you get an LSO to the runway and establish two-way radio communications? We've given a lot of attention to that question here at NAS Lemoore, and we now have a field-support truck with a radio that can pick up and deliver an LSO to the runway in 5 minutes.

Lt. McGregor flies with VFA-151.

BRAVO Zulu

BZs require an endorsement from the nominating squadron's CO and the appropriate CAG, wing commander or MAG commander. In the case of helo dets, the CO of the ship will suffice. A squadron zapper and a 5-by-7-inch photo of the entire crew should accompany the BZ nomination. Please include a squadron telephone number so we can call with questions.

LtCol. Ken Hopper
SSgt. Brian Tooke
SSgt. Bill Welch
SSgt. Mike Fahmer
SSgt. Jeron Chapman
Capt. Terry Euling

VMGR-234

En route to Travis AFB to support a weekend exercise, the crew of Ranger 27 got a call from Salt Lake Center about a downed civilian Cessna 182. A cold front with low cloud cover was moving into the crash area. The Marine crew replied they were ready to help.

Arriving over the crash site, a mountainous area in Nevada, the KC-130 crew heard from an Air Force Hercules, Reach 26, whose crew was in radio contact with the civilian pilot. Reach 26 was a thousand feet below the Marine Herc, and the USAF crew was trying to find the Cessna, which had two people aboard, and was hoping to direct land rescue forces to the survivors. Despite the Cessna pilot's directions, the Air Force crew couldn't find him. After several attempts, they invited the Marines to try their hand.

The Marine crew was beginning to have trouble with deteriorating visibility in the thickening clouds, so they lowered the rear ramp. With harness attached, SSgt. Chapman (loadmaster) moved to the ramp's edge to scan the barren, snow-covered mountains below.

The Marines realized it was important to find the Cessna before evening, which would turn bitterly cold. They learned later that the Cessna had no emergency or survival gear. They talked to the civilian pilot, who, it turned out, was a retired Marine aviator.

Finally spotting the white Cessna in the snow, the KC-130 crew called in the coordinates, which were in a relatively clear area, the pilot having set his light plane down with little damage. The Air Force crew dropped a parachute marker.

Center told Reach 26 that a ground rescue party might not reach the crash site until the next day, and because the site was at 6,000 feet MSL, the temperature was already below freezing. Even worse, the forecast called for winds and more snow. Finally, there were no homes or towns within 15 miles.

Deciding to drop a life raft, which contained survival equipment, the Marine crew calculated the best approach, with the USAF aircraft keeping clear of the maneuvering area. The Marines dropped the raft, and LtCol. Hopper (AC) turned hard to avoid a mountain. His crew looked back to see the two downed flyers recovering the supplies.

Ranger 27 circled the site and told the civilians how to use the equipment in the raft. The Marines then rejoined Reach 26 in a wider orbit as the weather continued to deteriorate. Both Hercules remained over the site to provide moral support and direct land-rescue units, while also keeping Salt Lake Center informed. Fortunately, the ground units arrived early that evening.

After they were sure they had done all they could, the two C-130 crews headed for their original destinations.

HMM-265(REIN)

Capt. Stackpole (HAC) and Capt. Woodward (copilot) launched on a ferry flight from MCAS Iwakuni to NAS Atsugi in their AH-1W. En route, the crew experienced intermittent torque splits (35-40 percent). They made a planned fuel stop at Tokushima, where they consulted their QA shop on the phone.

The squadron advised Capt. Stackpole to check the electrical fittings on the electrical engine-control unit (EECU). He found the blue cable to the torque overspeed-sensing unit was loose. The crew tightened the fitting one-half turn. They then continued on their flight to Atsugi.

Ten minutes after takeoff, they again had torque fluctuations. Diverting back to Tokushima, and after more discussions with QA, Capt. Stackpole and Capt. Woodward reseated cables and caps on the EECU, ensuring all connections were tight, with no apparent damage.

The aircrew flew in the local VFR pattern to further troubleshoot the torque fluctuations. Without any throttle movements at 100 percent Nr, the Cobra's No. 2 engine failed. As the No. 1 engine momentarily compensated for the power loss, Capt. Stackpole set up a single-engine landing. Ten seconds later, the No. 1 engine failed.

At this point, the crew entered an autorotation at 500 feet AGL and landed on the duty runway with no damage to their helicopter.

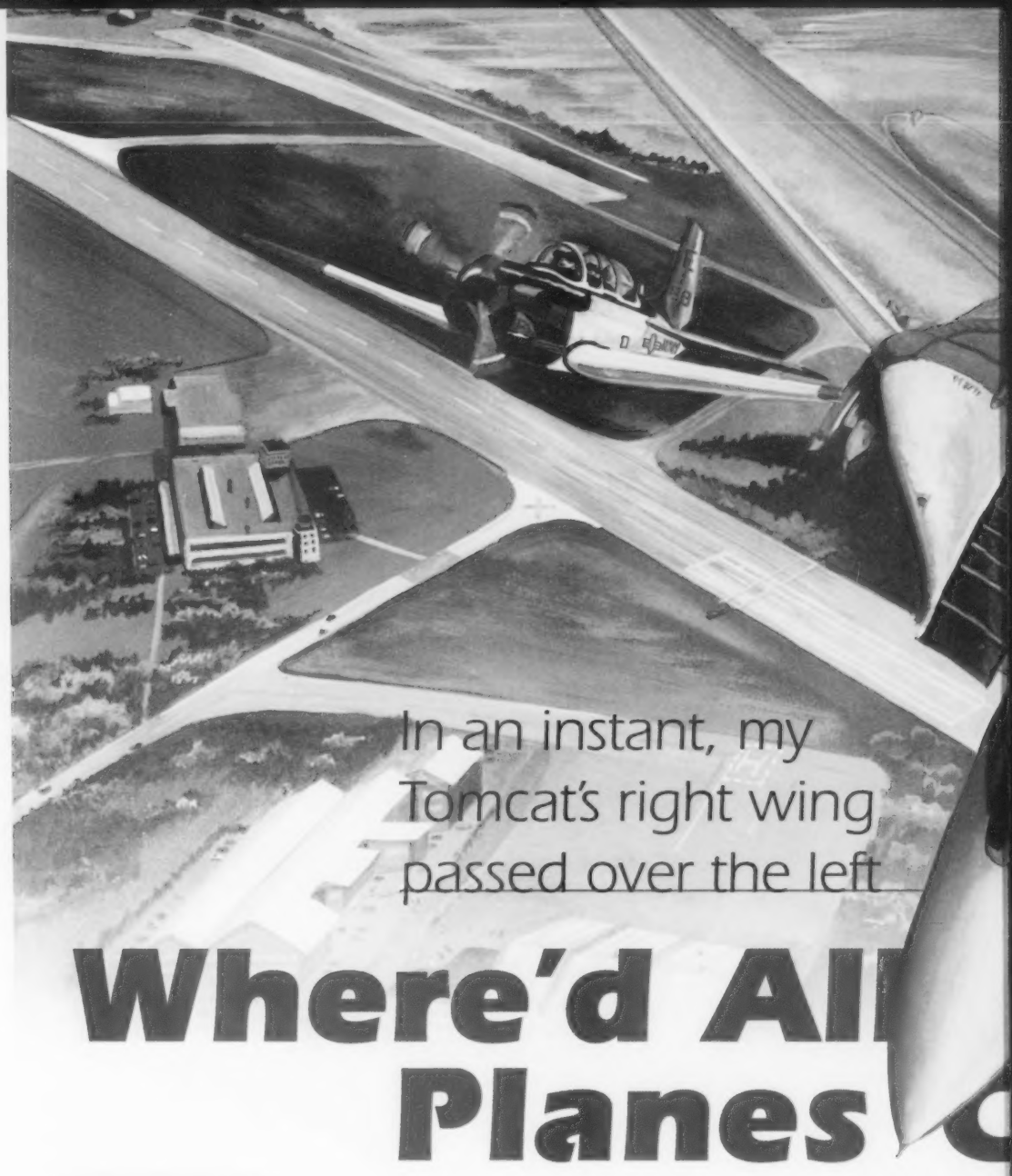
Capt. Ed Scoggin
Capt. Richard Hunt
Sgt. William Shirley

HMM-162 (REIN)

The Huey crew was making an FCF for a droop cam compensator. While turning final, the helicopter completely lost power on No. 1 engine. Capt. Hunt (PAC) lowered the collective to preserve rotor rpm and completed the emergency procedures for an in-flight, single-engine failure.

The crew called tower, declared an emergency, and made a slide-on landing to the runway.

Postflight inspection revealed two 1-inch holes in the engine's burner can and multiple deformations in the exhaust gooseneck. An internal-bearing failure probably resulted in the catastrophic engine failure.



In an instant, my Tomcat's right wing passed over the left

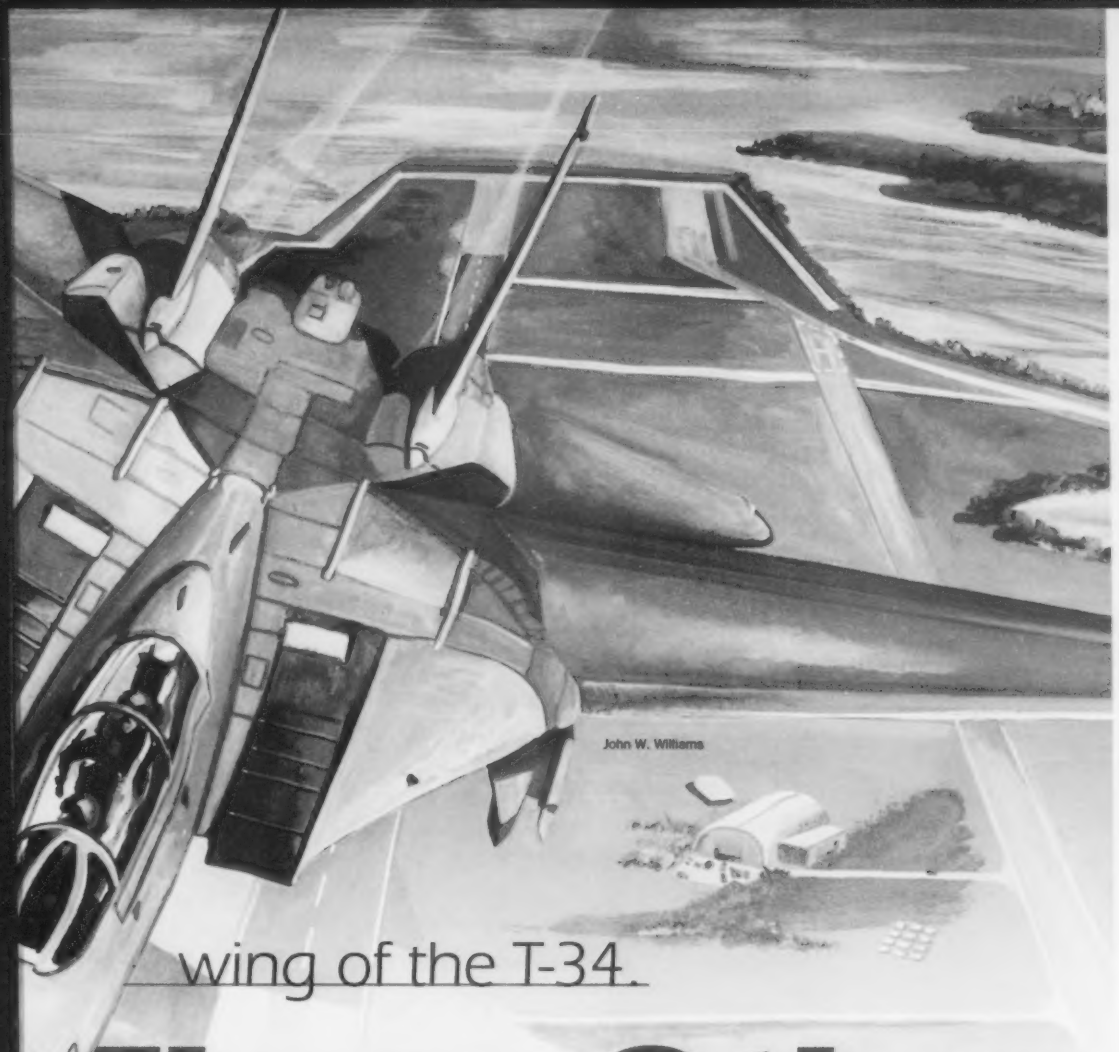
Where'd All Planes C

by LCdr. Devon Jones

THE TRAINING SORTIE WAS SIMPLE. The RTB portion started out to be simple, too, but it didn't stay that way.

I was an instructor pilot in the F-14 FRS on one of the less-demanding air-to-air missions: two F-14s versus one bogey, in this case an A-4. We were on detachment to NAS Key West. This particular det was crowded with our F-14 FRS tactics class, two FA-18 squadrons doing the Strike Fighter Advanced Readiness Program, and T-2 and T-34 squadrons flying local VFR and IFR operations. Because the Hornets and Tomcats were so much faster than the training command aircraft, a concerted effort had been made to simplify the flight schedules.

The mission went smoothly. It was a beautiful day, cloudless in the late morning. As the flight lead, I was double-cycling wingmen in the op area just south of the field. My first wingman was a replacement pilot (RP) and, after four solid runs, I cleared



wing of the T-34.

These Other ome From?

him to detach and RTB. My second wingman was another IP flying with a very experienced Cat III replacement RIO (RRIO) undergoing refresher training.

After a couple of uneventful runs, we left them in the area and returned home by ourselves. The duty runway was a northerly one, which afforded very little admin time on our return leg. My RRIO did a nice job of quickly stepping through several frequencies to get to tower. Checking in, the tower directed us to report the numbers, runway 3. We rogered and continued inbound.

We reported the numbers at 1,500 feet, and tower called our interval as "two T-2s in the crosswind."

"Two? They must be in the break," I thought, as I scanned the pattern's crosswind airspace. Unable to see any aircraft, I widened my scan. A second or two passed, and I looked harder (if that was possible) and wider to find the T-2s. I still couldn't find anybody, and I

As I looked down to my right, I saw two helmets, two control sticks, cockpit gauges and even kneeboard cards.

asked tower to call my interval again.

"Two T-2s in the crosswind," the controller repeated. Still two and still in the crosswind? Now I scanned the entire pattern. I finally spotted two T-2s at a very wide 180-degree position (about 2 miles abeam), in loose parade formation and angled away from the field.

"Either their break didn't achieve the desired results, or they're doing something else," I thought.

I was losing situational awareness, and after what seemed an eternity searching for my interval, I looked forward—simply out of habit. This tally was easy. It was a T-34, co-altitude, in my front windscreen, looking like it was standing still. In an instant, my Tomcat's right wing passed over the left wing of the T-34. I swerved to the left, but it really didn't matter because our wings had long since crossed flight paths.

As I looked down to my right, I saw two helmets, two control sticks, cockpit gauges and even kneeboard cards. I first thought I had overtaken this T-34, that it was also in the overhead for the break, and that it would have been nice to have had an advisory or warning from tower. I quickly chastised myself for not being more careful.

Basic survival instincts, triggered by extremely low SA, now superceded ATC procedures. Overflying the upwind numbers, I gently broke right, climbed to 2,000 feet and secured a safe bubble of airspace around my aircraft. I commanded the wings forward—a little late now—dirtied up, and flew a high, wide pattern.

Meanwhile, the T-34 had departed controlled flight because of our Tomcat's jet wash and tumbled until the crew recovered several hundred feet later.

Later, after our final landing, we put the pieces together. Two T-2s had preceded our F-14 into the break by quite a bit. With some sort of a comm breakdown, the tower neither heard nor acknowledged their decision to depart and re-enter. The T-34 was on an instrument flight plan. Cleared for takeoff and climb to 1,500 feet, the T-34 pilot delayed on the runway because of jet wash, then made a max performance climb to 1,500 feet at midfield. The tower controller (a trainee) was confused over the T-2s' intentions and not aware that the T-34's delay for jet wash posed a potential conflict with our incoming F-14, so he didn't warn either aircraft. The T-34's failure to remain clear of the VFR pattern on departure put two aircraft in the same piece of sky. My failure to scan all of the airspace around the field as we approached the runway and subsequent fixation with finding our reported interval prevented my seeing the lifting T-34.

As with most *Approach* articles, a routine flight, even a routine portion of a routine flight, nearly resulted in disaster. A number of people made a number of mistakes in less than one minute. We are taught from day one in naval aviation to always assume somebody out there is trying to kill you. Don't forget to include yourself in that category.

LCdr. Jones flew F-14s with VF-103 and VF-101. He is currently transitioning to the Hornet with VFA-106.

Good thing I didn't need it!

by Lt. Todd Lepper

I get a certain pleasure in reading *Approach* articles telling about people's mistakes. "I would never do that," I think in the comfort of my ready room or office.

After a hectic underway period, we were all anxious to get off the ship. I was fortunate to be the HAC for the fly-off crew and spent the morning trying to get everything organized and loaded.

We preflighted, loaded up, I grabbed my survival vest off a pile on the deck, then strapped in. I had been using my vest for several days, and it always passed its preflight inspection. Because I was in a hurry, I didn't check it this time. What the heck, it had been fine every day for the past week.

After we landed, I walked in and unstrapped my vest. I knew I wouldn't be flying again soon and I wanted to make sure my HEED bottle was off. Imagine my surprise when I turned the knob and it twisted freely in my fingers. It didn't take long to discover there was no air in the bottle!

When it had been thrown on the pile, the knob must have pressed against other equipment and drained.

We all read the signs that say, "Preflight your gear as if your life depended on it." It was good I did not have to rely on the bottle during this latest flight. I'll never take my survival gear for granted again.

Lt. Lepper flies with HSL-49's Det 8H.

Imagine my surprise when I turned the knob and it twisted freely in my fingers.

Punching Through

by Lt. Jean-Paul G. Lovera

WE WERE THE LAST CLASS GOING through the East Coast FRS before it disestablished and all S-3 training shifted to the West Coast FRS. Having just returned from a weapons det to Roosevelt Roads, we had just one more tactics flight, eight weapons-systems trainers, and a final exam before we went to our fleet squadrons.

Another student and I were the first in our class scheduled for the Tactics 6 flight, which required flying from Cecil to the EW range near Cherry Point. The other student was a good friend, and we were looking forward to the flight because the two instructors scheduled for the hop were great to fly with.

The weather was forecast to be typical for July, calling for light, scattered clouds in the morning and possible thunderstorms as the day progressed.

After reading the ADB and preflighting, including a check of the radar freon pressure (which became a factor later), we were ready to go.

I had the right front seat for the first leg. After the back-seat student finished, we climbed overhead the range, and I switched with him. By the time we were ready to RTB, we had been airborne for more than two and a half hours.

As we checked off the range and headed for Cecil, everything was OK. Approaching the Florida-Georgia border, the clouds increased dramatically. We discussed a weather penetration and were sure we would not have any problems.

For the next few minutes, we were in and out of clouds, then as we broke out of a small patch, a huge squall line appeared ahead of us. The wall ranged thousands of feet above and below us, and stretched for more than 200 miles laterally.

With little time to react, we entered the clouds with the instructor in the back seat and me going on the radar.

The ride started getting bumpy and after picking out several huge cells ahead, we asked center for a flight-path deviation. At this point, the cockpit became pitch black. The radar failed and wouldn't come back on line. The noise was unbelievably loud; it sounded like a barrage of golf balls hitting the aircraft at 400 knots, making ICS communication difficult.

As the S-3 began bucking violently, I looked forward at the pilot's instrument panel. We were being tossed up and

the Darkness

down in our seats, and I could see the attitude gyro jump from 45 degrees nose up to 45 degrees nose down. With the pitching came corresponding gains and losses in altitude of up to 5,000 feet in what seemed liked milliseconds. The IP was struggling to maintain level flight. I positioned myself for ejection.

Just as fast as we entered the squall line, we punched through to clear, blue skies and smooth air. The silence was deafening. It took several seconds to realize we and our aircraft were intact. From the time the radar failed to when we broke out was probably no more than 10 seconds. It was the closest I had ever come to pulling the handle.

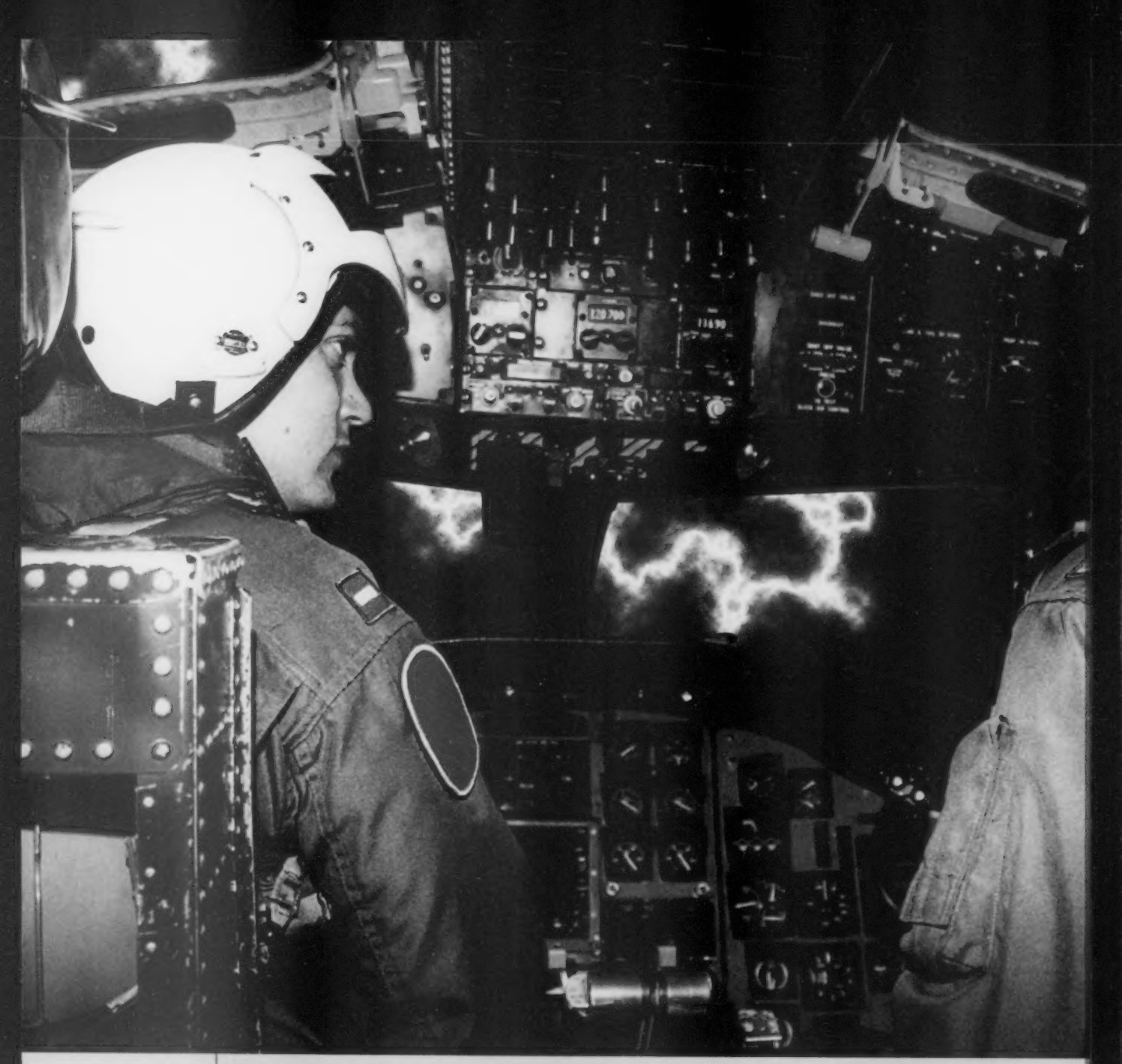
The IP was struggling to maintain level flight. I positioned myself for ejection.

After we pulled into the line and saw the faces of the ground crew, it was obvious the jet was not in the same condition as when we left. The radome was full of dents and perforations, some deep enough to show honeycomb beneath the surface. All the leading edges and sections of the fuselage had been stripped to bare, shiny metal and were also covered with dings. The four ESM antennas were gone. We were amazed that the canopies were undamaged.

Although heavy weather may not be in the forecast, everyone in the crew should be familiar with regional weather phenomena. Weather in the southeastern U.S. can be unpredictable. We might have done a better job of picking our way through the cells if our radar hadn't failed, but postflight revealed the freon system had begun leaking. Our "thorough" brief should have also included weather avoidance and divert criteria.

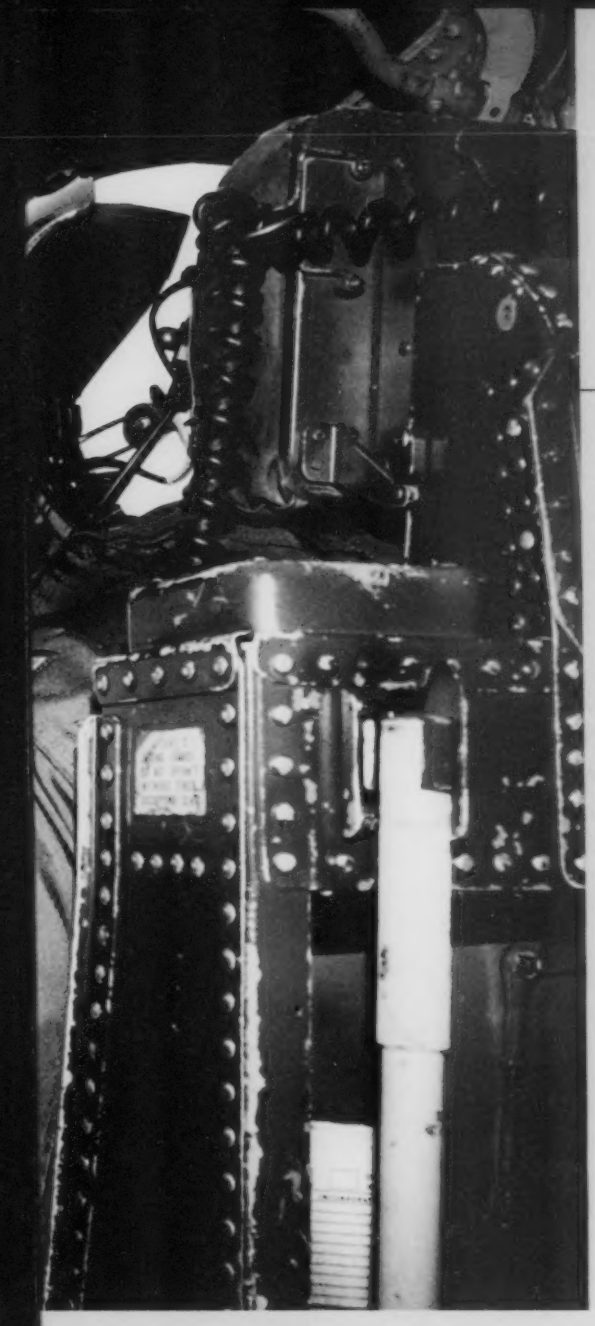
The CO canceled the remaining Tactics 6 flights to Cherry Point because of the weather conditions. He rightfully determined that the training benefits didn't justify the risks and that we could do the training another way, which gave me and my friend the dubious honor of being the last East Coast FRS students to fly this particular training hop.

Lt. Lovera flew with VS-32. He is now the S-3 analyst at the Naval Safety Center.



No-Flap Div

As our fuel slowly inched toward bingo, stress in the cockpit rose proportionally.



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by Lt. Chris Sund

"READY FOR PROFILE? Flaps are going to ten." It sounds simple enough; every E-2 pilot has made that statement countless times. This time was no different. I moved the flap handle, anticipating the inevitable "ballooning" that occurs when the flaps are programmed down. However, the sudden "up elevator" feeling in the seat of my pants was replaced with… nothing. The flaps didn't move!

We were flying a night AEW mission and had been transiting to station at FL 270 for approximately 45 minutes.

"OK, not a big deal," I said at first. "This has happened before. We flew through a little moisture back there, and the flaps are just frozen." After discussing the situation with the mission commander, we decided we could complete the mission with zero flaps, and with only a minor increase in fuel flow. We recalculated our fuel ladder and determined we'd be below max trap but above charlie fuel on the ball. We could live with that.

"What about a zero-degree flap-landing on the ship?" you Hawkeye pilots out there may ask. We thought of that, too, and quickly discarded the possibility. After all, the flaps were merely frozen and would certainly work once we descended below the freezing layer.

Four hours later, the ominous thunderstorms that had been over land and the adjacent water had moved closer to the ship. Intermittent lightning from the encroaching storms eerily split the dark. In the back of our minds, we *knew* the flaps would work. Diverting wasn't even in the cards, was it? No way would we be the first crew in our

squadron to divert! Not only would we have to sleep in tents, but the primary divert field wasn't exactly a prime liberty destination. Just to be prepared though, I double-checked my nav bag to make sure our air-wing divert pack had the approach plate, the necessary frequencies, and the charts for the primary divert field.

We began a slow descent to our assigned marshaling altitude. By this time, the heavy weather had migrated to the marshal radial. Trying to avoid the weather *and* navigate to our marshal point, using as little fuel as possible, we tried lowering the flaps about every 30 seconds. Patiently, the pilot and I scanned the gear-and-flap indicator. Each time, the flap indicator refused to move. With each attempt, our disappointment grew. With our fuel state about 1,000 pounds above bingo, we were running out of time and options.

We contacted a squadron rep on the radio and went through the NATOPS procedures with him. NATOPS doesn't recommend a no-flap carrier landing if a divert field is available. We had a divert field, but the decision to divert would have to be the captain's. None of us in the plane were too keen on coming aboard without flaps. As our fuel slowly inched toward bingo, stress in the cockpit rose proportionally. We unashamedly bashed the ship for delaying our necessary divert. What seemed like an eternity was actually about 10 minutes.

"Divert!" the captain finally called. With the nod from the ship's CO and a collective sigh of relief, we turned west on a no-flap bingo profile.

Weather at the divert was CAVU, but our difficulties weren't over. Our no-flap approach would obviously be faster than normal, and our ground speed on final would determine if we would need to make an arrested landing. I asked the local approach controller if the arresting gear at the divert field was in battery just in case we needed it. Because of the language barrier, he was convinced we were going to make an arrested landing. To this day, I still don't think I was able to clear up the confusion.

We were cleared on a vector to intercept the final approach course with a descent from FL 200 at pilot's discretion. We decided to continue with the bingo profile and, once established on the approach, fly it as published.

When handed off to the tower controller, we experienced our own confusion. The tower controller passed the altimeter setting as 29.62, yet not 20 minutes earlier, the ship had given me an altimeter setting of 30.00. Tower confirmed the altimeter setting, but offered no further explanation. I didn't have time to ponder the conflicting settings because we were smoking along at about 160 IAS and were about to land.

Flying the PAPI to just above touchdown, the pilot slowed to 24 units AOA to gain the necessary tire speed for touchdown. We rolled out and headed for the makeshift transient line to await word from the ship and ultimately, the rescue crew.

As it turned out, the local altimeter setting used was QFE (or absolute altitude) *not* QNH. For those of you who may not remember (hey, we didn't), using QFE gives you altitude AGL rather than the MSL most of us usually use. This certainly would have been nice to know, especially if we would have had to fly the approach in IMC.

I learned at least three important lessons on our trip. First, assumptions are sometimes necessary but can be incorrect. When making assumptions, always play what if games. We could have painted ourselves into a corner with our insistence about the nature of our flap problem. But the incessant whisper of instinct made us consider the possibility of diverting.

Second, the sooner you tell the ship about your problem and your intentions, the sooner you can proceed with your plan. Don't waste precious seconds.

Third, if I would have read the fine print in the actual approach plates instead of the air wing "gouge pack," I would have known about the local altimeter settings. The gouge packs are a great ready reference in the cockpit, but they are no substitute for thorough research and flight planning.

Lt. Sund flies with VAW-112.

LESSONS LEARNED

There are two ways to get smart. One is through experience—we call this "the hard way." The other is to learn through others' experiences. The second method is much easier on our machines and bodies.

Hidden Hangover

by Lt. Heidi Squier, MSC

IT'S 0100 AT THE O CLUB. A hail and farewell has continued into the night, but our aviator knows he will not brief his flight until 1400 the next day. "More than 12 hours bottle to brief," he thinks, as he declines a beer and orders a glass of water. He gets a room at the BOQ so he doesn't have to drive. After checking in, he forces down more water and falls asleep.

By 1400 the next day, our hero feels fine. The water he drank did the trick of hydrating away his hangover symptoms. He arrives for his brief apparently in good shape. His flight goes fine... until he enters IMC. Before he can transition to instruments, he becomes aware of a sickening, spinning sensation. His copilot takes the controls and lands. However, our aviator is confused, as well and nauseated.

"These symptoms can't have anything to do with last night," he thinks. "It's been more than 12 hours since my last drink. NATOPS and 3710 both say I *can* fly."

He can... but should he?

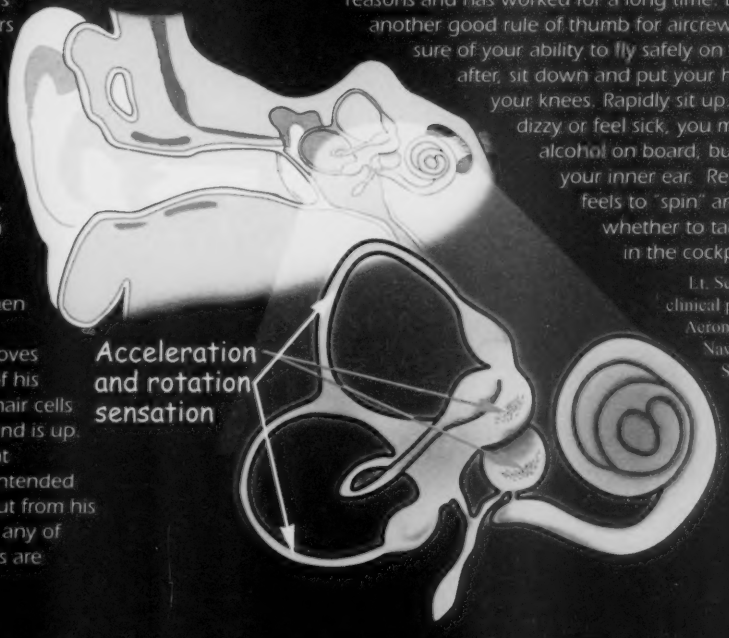
His problem is in his vestibular apparatus, which lies buried within the inner ear and has tiny hair cells that stick into a jelly-like fluid. When the aviator turns or accelerates, this fluid moves opposite the direction of his motion, deflecting the hair cells and telling him which end is up. These hair cells are great inventions but are not intended to function without input from his eyes, ears, and brain. If any of these other components are impaired, a mismatch occurs and he feels sick.

Alcohol displaces part of the fluid in the inner ear, making the tiny hair cells hypersensitive to any movement, almost as if they were sunburned. When you go out drinking and later lie down in a quiet room and close your eyes, you shut several other components out of the equilibrium system. The hypersensitive cells then make it seem like the room is spinning.

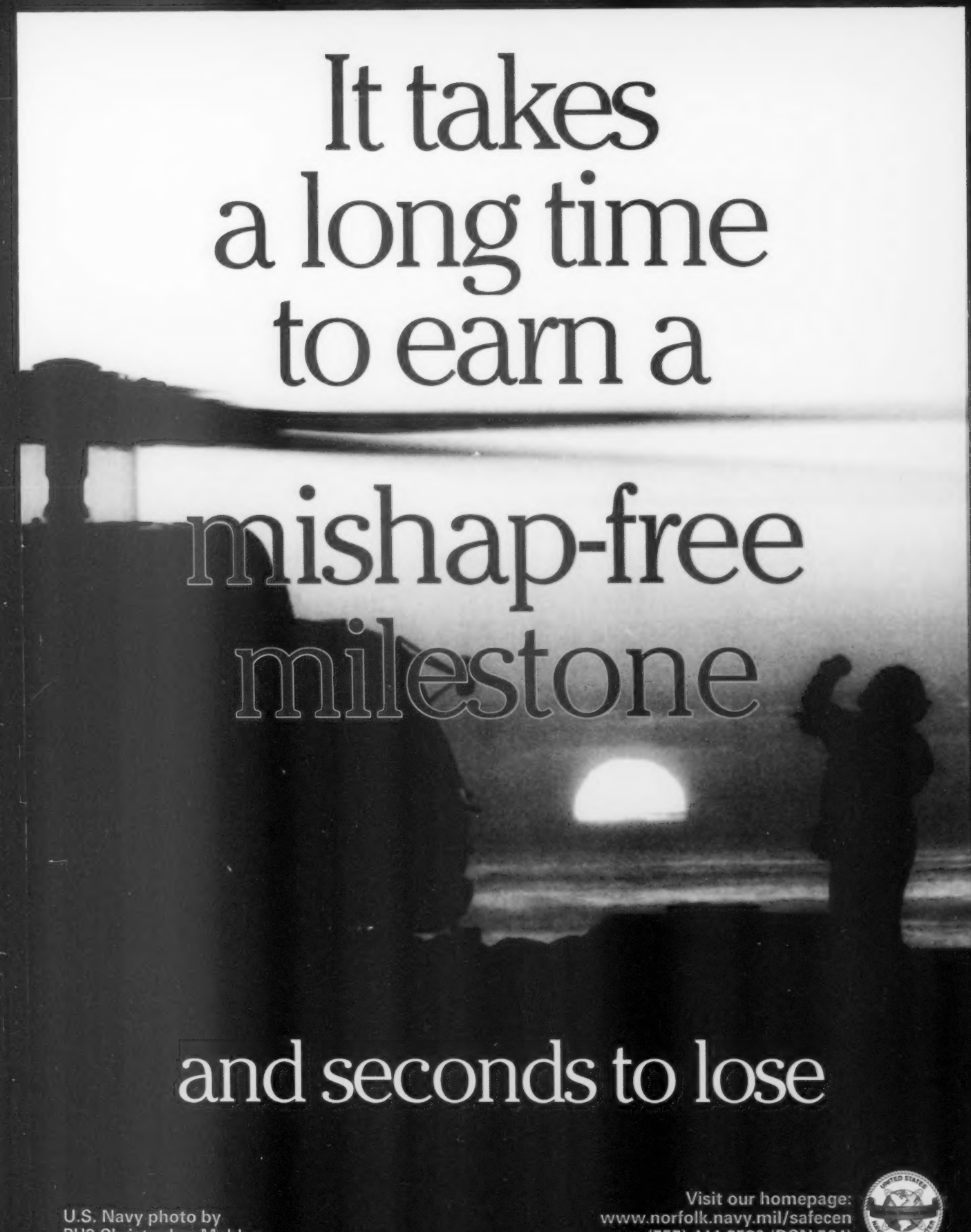
How does alcohol affect you in flight? It can take 24-48 hours for the alcohol in your inner ear to dissipate, despite a 0.0 BAC. It may still be there when you fly into clouds. Since the hair cells are still "sunburned," the false sensation could disorient you. In the case of this pilot, he waited to transition to instruments and thus cut his eyes out of the equation.

The bottle-to-brief rule was developed for good reasons and has worked for a long time. But there is another good rule of thumb for aircrew: if you're not sure of your ability to fly safely on the morning after, sit down and put your head between your knees. Rapidly sit up. If you get dizzy or feel sick, you might still have alcohol on board, buried within your inner ear. Remember how it feels to "spin" and decide whether to take that chance in the cockpit.

Lt. Squier is an aviation clinical psychologist in the Aeromedical Division, Naval Safety Center. She holds a Ph.D. in clinical psychology from the University of California, San Diego School of Medicine.



Alcohol and Your Inner Ear



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